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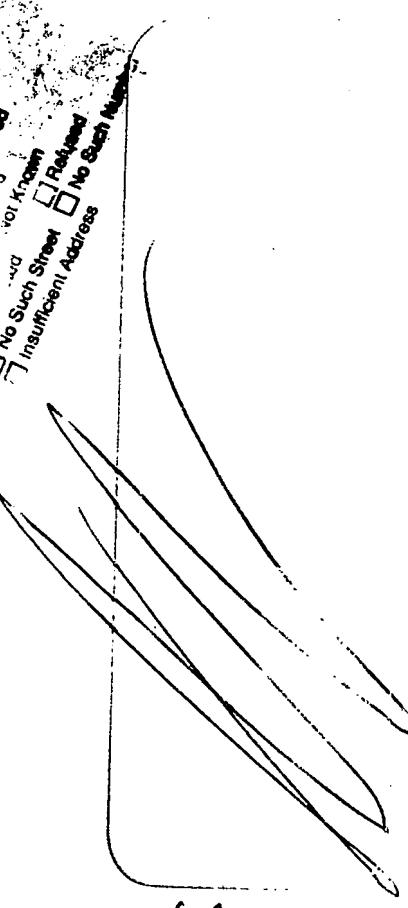
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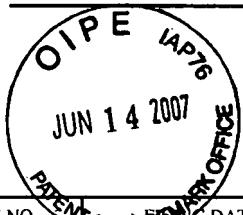
APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,763	03/10/2004	Michael D. Ruminer		5886

7590   06/06/2007

MICHAEL D. RUMINER
340 WASHINGTON ST.
NORWELL, MA 02061

EXAMINER
RUTTEN, JAMES D

ART UNIT	PAPER NUMBER
2192	

MAIL DATE	DELIVERY MODE
06/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
	10/797,763	RUMINER ET AL.
	Examiner	Art Unit
	J. Derek Rutten	2192

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 March 2004*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☐ All b)☐ Some * c)☐ None of:

  1.☐ Certified copies of the priority documents have been received.

  2.☐ Certified copies of the priority documents have been received in Application No. _____.

  3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08)
  Paper No(s)/Mail Date *6/10/04*.

4)☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____ .

DETAILED ACTION

1.   Claims 1-31 have been examined.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3.   Claims 12-24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works, and a compilation or mere arrangement of data.

Both types of "descriptive material" are nonstatutory when claimed as descriptive material *per se*, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized.

Claim 12 is directed to an "automated system," comprised of rules, identifiers, and

attributes. There do not appear to be any physical components in this system and so is

interpreted as descriptive material. Further, the system appears to be a compilation or mere

arrangement of data without any specific data manipulation functions. Thus, the claim appears

to be directed to nonfunctional descriptive material. Claims 13, 15-17 and 23 also appear to be

directed to nonfunctional descriptive material, while claims 14, 18-22, and 24 provide some type

of data manipulation function and appear to be directed to functional descriptive material.

However, none of the claims are recorded on any computer-readable medium, and thus are

claimed as descriptive material *per se*, and so are nonstatutory. See MPEP 2106.01.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5.   Claims 1, 2, 5, 9, 11, 12, 15, 16, 23, 25, and 28 are rejected under 35 U.S.C. 102(b) as

being anticipated by U.S. Patent Application Publication No. US 2002/0062477 A1 by Sasaki

(hereinafter "Sasaki").

In regard to claim 1, Sasaki discloses:

A method for identifying which business rule or rules relate to a certain segment

of source or object code - See Fig. 3. Sasaki discloses a method for extracting code

specification comment statements from source code and identifying the associated code

segments using a unique comment keyword. Note that the term "business rule" as used

in the claim is reasonably broadly interpreted in terms of Sasaki's code specification,

according to section 2, "Description of the Related Art," appearing on pages 1-6 of

Applicants' originally filed specification (especially the first paragraph of section 2).

comprising the steps of:

> *(a) identifying a set of business rules;* See Fig. 3, e.g. step S1,

"...EXTRACTING FIRST SET OF COMMENT STATEMENTS FROM SOURCE

CODE."

> *(b) providing each business rule with a business rule unique identifier; and* See

Fig. 3, e.g. step S2, "SET COMMENT KEYWORD."

> *(c) attaching an attribute to a segment of code, wherein the attribute contains the*

business rule unique identifier. See Fig. 3, e.g. step S4, "INSERT COMMENT

KEYWORD INTO SOURCE CODE." Note that the attribute is reasonably broadly

interpreted as Sasaki's comment keyword.

In regard to claim 2, the above rejection of claim 1 is incorporated. Sasaki

further discloses: *validating the business rule at coding time.* See paragraph [0098].

In regard to claim 5, the above rejection of claim 1 is incorporated. Sasaki further

discloses: *validating at coding time the existence of a business rule.* See Fig. 19 element

S409.

In regard to claim 9, the above rejection of claim 1 is incorporated. Sasaki further discloses: *wherein the business rules are contained in a business rule repository.* See paragraph [0062].

In regard to claim 11, the above rejection of claim 1 is incorporated. Sasaki further discloses: *utilizing a business rule source code cross-reference index to store metadata on the relationships between certain segments of source or object code and the business rules.* See Fig. 4.

In regard to claim 12, Sasaki discloses:

An automated system - See paragraph [0045], e.g. "program specification generating system." Note that Fig. 1 depicts the corresponding hardware system. *comprising:*

(a) a set of business rules; See Fig. 3, e.g. step S1, "...EXTRACTING FIRST SET OF COMMENT STATEMENTS FROM SOURCE CODE." Note that Sasaki's comment statements are used as code specifications which are interpreted as business rules as pointed out in the rejection of claim 1 above.

(b) a set of business rule unique identifiers, wherein each business rule unique identifier corresponds to one and only one business rule; and See Fig. 4 and paragraphs [0023], [0061], and [0062], e.g. "comment database." Also see paragraph [0015], e.g. "statements are individually managed by their own comment keywords."

(c) one or more attributes attached to one or more segments of source or object code, wherein each attribute contains at least one business rule unique identifier. See Fig. 3, e.g. step S4, "INSERT COMMENT KEYWORD INTO SOURCE CODE." Note that the attribute is reasonably broadly interpreted as Sasaki's comment keyword.

In regard to claim 15, the above rejection of claim 12 is incorporated. All further limitations have been addressed in the above rejection of claim 11.

In regard to claim 16, the above rejection of claim 12 is incorporated. Sasaki further discloses: *a business rule source code cross-reference engine.* See paragraph [0085].

In regard to claim 23, the above rejection of claim 12 is incorporated. Sasaki further discloses: *a cross-reference search tool* See Fig. 3, element S1. *and a user interface for the cross-reference search tool.* See Fig. 6.

In regard to claim 25, Sasaki discloses a computer readable medium having computer executable instructions. See paragraph [0013], e.g. "storage medium containing a specification generating program." All further limitations have been addressed in the above rejection of claim 2.

In regard to claim 28, Sasaki discloses a computer readable medium having

computer executable instructions. See paragraph [0013], e.g. "storage medium

containing a specification generating program." All further limitations have been

addressed in the above rejection of claim 5.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

7.   Claims 3, 6, 26, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Sasaki as applied to claim 1 above, and further in view of U.S. Patent 5,995,736 to Aleksic et al.

(hereinafter "Aleksic").

In regard to claim 3, the above rejection of claim 1 is incorporated. Sasaki further

discloses: *validating the business rule* See paragraph [0098]. Sasaki does not expressly

disclose validating *at compile time*. However, Aleksic teaches validating at compile

time. See column 4 lines 30-37. It would have been obvious to one of ordinary skill in

the art at the time the invention was made to use Aleksic's compile time validation with

Sasaki's validation in order to verify that written code accurately meets a specification as

suggested by Aleksic.

In regard to claim 6, the above rejection of claim 1 is incorporated. All further limitations have been addressed in the above rejections of claims 3 and 5.

In regard to claim 26, Sasaki discloses a computer readable medium having computer executable instructions. See paragraph [0013], e.g. "storage medium containing a specification generating program." All further limitations have been addressed in the above rejection of claim 3.

In regard to claim 29, Sasaki discloses a computer readable medium having computer executable instructions. See paragraph [0013], e.g. "storage medium containing a specification generating program." All further limitations have been addressed in the above rejection of claim 6.

8. Claims 4, 7, 27, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki as applied to claim 1 above, and further in view of U.S. Patent Application Publication No. US 2003/0192033 A1 by Gartside et al. (hereinafter "Gartside").

In regard to claim 4, the above rejection of claim 1 is incorporated. Sasaki further discloses: *validating the business rule* See paragraph [0098]. Sasaki does not expressly disclose validating *on demand*. However, Gartside teaches validating on demand. See paragraph [0031]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Gartside's on demand validation with Sasaki's

validation in order to provide validation as a regular, possibly scheduled, event, as suggested by Gartside.

In regard to claim 7, the above rejection of claim 1 is incorporated. All further limitations have been addressed in the above rejections of claims 4 and 5.

In regard to claim 27, Sasaki discloses a computer readable medium having computer executable instructions. See paragraph [0013], e.g. "storage medium containing a specification generating program." All further limitations have been addressed in the above rejection of claim 4.

In regard to claim 30, Sasaki discloses a computer readable medium having computer executable instructions. See paragraph [0013], e.g. "storage medium containing a specification generating program." All further limitations have been addressed in the above rejection of claim 7.

9.   Claims 8 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki as applied to claim 1 above, and further in view of U.S. Patent Application Publication No. US 2005/0066319 A1 by DeLine et al (hereinafter "DeLine").

In regard to claim 8, the above rejection of claim 1 is incorporated. Sasaki does not expressly disclose: *querying compiled code for the use of a given business rule.*

However, DeLine teaches querying·compiled code for compliance with a specification. See paragraph [0011]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use DeLine's compiled code with Sasaki's business rules in order to check for fault conditions as suggested by DeLine.

In regard to claim 31, Sasaki discloses a computer readable medium having computer executable instructions. See paragraph [0013], e.g. "storage medium containing a specification generating program." All further limitations have been addressed in the above rejection of claim 8.

10.   Claims 10, 13, 14, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki as applied to claims 9 and 12 above, and further in view of U.S. Patent Application Publication No. US 2002/0184610 A1 by Chong et al. (hereinafter "Chong").

In regard to claim 10, the above rejection of claim 9 is incorporated. Sasaki further discloses: *utilizing a business rule source code cross-reference [code] to add a business rule that is represented by a particular business rule unique identifier to the business rule repository.* See Fig. 3, element S1. Sasaki does not expressly disclose a *plug-in*. However, Chong teaches the use of a plug-in. See paragraph [0150]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Chong's plug-in with Sasaki's business rules in order to provide additional functionality as suggested by Chong.

In regard to claim 13, the above rejection of claim 12 is incorporated. All further limitations have been addressed in the above rejection of claim 10.

In regard to claim 14, the above rejection of claim 13 is incorporated. Sasaki does not expressly disclose: *an integrated development environment (IDE) with a plug-in interface, wherein the business rule source code cross-reference plug-in communicates with the IDE via the plug-in interface.* However, Chong teaches the use of an IDE that communicates with a plug-in through a plug-in interface. See Fig. 7, element 508. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Chong's plug-in interface and IDE with Sasaki's code in order to provide additional functionality as suggested by Chong (see paragraph [0150]).

In regard to claim 24, the above rejection of claim 23 is incorporated. Sasaki does not expressly disclose: *wherein the cross-reference search tool interacts with external applications.* However, Chong teaches the use of an IDE that communicates with an external plug-in through a plug-in interface. See Fig. 7, element 508. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Chong's plug-in interface and IDE with Sasaki's code in order to provide additional functionality as suggested by Chong (see paragraph [0150]).

11.   Claims 17 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Sasaki as applied to claim 16 above, and further in view of Aleksic and DeLine.

        In regard to claim 17, the above rejection of claim 16 is incorporated. Sasaki

further discloses: *wherein the business rule source code cross-reference engine*

comprises a ...code indexer (See Fig. 4), *a source code verifier* (see paragraph [0098]),

an index query engine (See Fig. 4.). Sasaki does not expressly disclose: a *compiled*

object verifier, compiled object indexer, *and a compiled object code query engine.*

However, Aleksic teaches a compiled object verifier. See column 4 lines 49-53. It would

have been obvious to one of ordinary skill in the art at the time the invention was made to

use Aleksic's teaching of compiled objects with Sasaki's verifier and indexer in order to

verify that an object accurately meets a specification as suggested by Aleksic. Further

DeLine teaches a compiled object query engine. See paragraph [0011]. It would have

been obvious to one of ordinary skill in the art at the time the invention was made to use

DeLine's compiled code with Sasaki's business rules in order to check for fault

conditions as suggested by DeLine.

        In regard to claim 19, the above rejection of claim 17 is incorporated. Sasaki

further discloses: *wherein the ... code indexer indexes to a repository the attributes in the*

... code. See Fig. 4. All further limitations have been addressed in the above rejection of

claim 17.

In regard to claim 20, the above rejection of claim 17 is incorporated. Sasaki further discloses: *wherein the source code verifier takes source code segments, parses out the attributes from the source code, and validates the attributes.* See paragraph [0098]. Note that identification of a comment keyword by Sasaki inherently requires parsing since the keyword could not be identified from the source code without parsing.

In regard to claim 21, the above rejection of claim 17 is incorporated. Sasaki further discloses: *a business rule source code cross-reference index, wherein the index query engine provides result sets based on given criteria as compared against the business rule source code cross-reference index.* See Fig. 19.

12. Claims 18 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki, Aleksic and DeLine as applied to claim 17 above, and further in view of U.S. Patent 6,085,198 to Skinner et al. (hereinafter "Skinner").

In regard to claim 18, the above rejection of claim 17 is incorporated. Sasaki, Aleksic, and DeLine does not expressly disclose: *wherein the compiled object code verifier takes compiled attributed object code and verifies as a post-compile process the existence of a particular business rule according to the attributes within the object code.* However, Skinner teaches a post-compile process (i.e. "reflection") for inspection of attributes in objects. See column 19 lines 10-17. All further limitations have been addressed in the above rejection of claim 6. It would have been obvious to one of

ordinary skill in the art at the time the invention was made to use Skinner's reflection

with Sasaki's verification in order to permit access to attributes by other objects as

suggested by Skinner.

In regard to claim 22, the above rejection of claim 17 is incorporated. Sasaki

further discloses: *wherein the attributes contain metadata,* (see Fig. 4.) *and wherein the*

compiled object code query engine performs one or more searches ... and returns a result

set based on the attribute metadata and the search criteria. See Fig. 19. Sasaki does not

expressly disclose searches *against compiled attributed object code.* However, Skinner

teaches searching *compiled attributed object code* See column 19 lines 10-17. It would

have been obvious to one of ordinary skill in the art at the time the invention was made to

use Skinner's reflection with Sasaki's verification in order to permit access to attributes

by other objects as suggested by Skinner.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to J. Derek Rutten whose telephone number is (571)272-3703. The

examiner can normally be reached on M-F 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tuan Q. Dam can be reached on (571)272-3695. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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jdr

TUAN DAM
SUPERVISORY PATENT EXAMINER
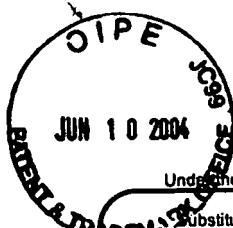
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INFORMATION DISCLOSURE
STATEMENT BY APPLICANT
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| Sheet | 1 | of | 2 |

Complete if Known	
Application Number	10/797,763
Filing Date	03/10/2004
First Named Inventor	Michael D. Ruminer
Art Unit	2122
Examiner Name	
Attorney Docket Number	RUM04-0001

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/JR/		US- 6,389,588	05/14/2002	Wadhwa et al.	
/JR/		US- 6,654,953	11/25/2003	Beaumont et al.	
		US-			
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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]

Examiner Signature	/James Rutten/	Date Considered	05/23/2007

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1]Applicant's unique citation designation number (optional). [2]See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3]Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached.
This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
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Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				Application Number	10/797,763
				Filing Date	03/10/2004
				First Named Inventor	Michael D. Ruminer
				Art Unit	2122
				Examiner Name	
Sheet	2	of	2	Attorney Docket Number	RUM04-0001

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
/JR/		DALEN KAMBUR, "Storage of Complex Business Rules in Object Database," Aug. 5, 2002, 1-11, Interoperable Systems Group, Dublin City University, Dublin, Ireland	
/JR/		BARBARA VON HALLE, "What Is a Business Rules Approach?" Business Rules Applied, 2002, Chapter 1, Wiley & Sons Publishers	
/JR/		BARBARA VON HALLE, "Building a Business Rules System, Part 1," DM Review Magazine, January 2001	

Examiner Signature	/James Rutten/	Date Considered	05/23/2007

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.
This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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		Application/Control No. 10/797,763		Applicant(s)/Patent Under Reexamination RUMINER ET AL.	
Notice of References Cited		Examiner J. Derek Rutten		Art Unit 2192	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,819,233 A	04-1989	Delucia et al.	717/129
*	B	US-5,758,032 A	05-1998	Sanders, Paul	706/45
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Use Case and Business Rules

Styles of Documenting Business Rules in Use Cases

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Organization

Participants at the full day workshop on October 6, 1997 in Atlanta, organized by Ed Anderson of BellSouth, Mike Bradley of BellSouth and Rosemary Brinko of American Management Systems, discussed the styles of documenting business rules in use cases. Below is a list of attendees organized alphabetically, along with their affiliation:

Each attendee presented a 15-minute overview of their workshop paper. Matrix One below, "Linkage of Use Cases and Business Rules" summarizes the key ideas from each presentation. After completing matrix entries from all presentations, the group reviewed the matrix looking for patterns. These are also summarized below.

Business Rules, Use Cases and Styles Overview

The group agreed with Pam Lash's definition of a business rule as a "...statement of business practices and policies" and Karl Walder's comment that business rules "...are anything that I have to test." Pam Lash, Karl Walder and Mike Frankel explicitly categorized business rules as format, domain business, algorithmic, user sequence, dependency constraints, and several minor categories

- Pam Lash had format business rules (business rule about one piece of information) and domain business rules (business rules relating two or more pieces of information).

- Karl Walder had other categories of business rules containing algorithms; business rules for certain business functions.

- Mike Frankel categorized business rules as "user sequence or dependency constraints" and was interested in allowing the users to "...filter out the level of detail they wanted to show."

The group's general observations about use cases echoed Milla Hautman's concern that it is "... hard to control the correct level of use cases so that the use case can be reviewed by the correct user." Many agreed with Ed Anderson that "...use cases formed a glue that held together representing rules in different ways."

The workshop represented a variety of styles for representing business rules. All, except for Lucio Dinoto, somehow related the business rules to the use cases. In most cases a repository, external to the use cases, documented the individual business rules and the use cases referenced the business rules by way of pointers. Lucio Dinoto, in searching for a common way to express rules independent of the use cases, represented business rules as patterns in a class diagram. He did this because "...use cases were a key to linking the system and the users."

Additional matrices documenting each presentation by rule style and rigor and reuse of the rules are available from the workshop organizers.

Workshop Participants

Lucio Dinoto - dinoto_lucio@jpmorgan.com
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Patterns from Group Review of Matrix

The group drew the following conclusions during the discussion surrounding the construction of Matrix One.

Topic	Conclusion
Style Applicability to Life Cycles	• All styles apply across the system development life cycles. Some domains, clients or applications may not use the style in all life cycle development phases and some may use them in all.
Type of Participants Using The Style	• The styles varied in the depth, in approach and whether a vendor or client used the style. All vendors and clients tailored their approach based on the client's needs. The client used the style internally within their company. The consulting companies used the style externally with their clients. The consulting companies generalized the style and adapted it to a variety of clients.
Concerns With The Styles	• The users must understand use cases. Because of diagrams, models, reports, and tool presentation, OO practitioners may need to teach users that use cases are "our friends" • Redundancy management for representing business rules • Handling change

Topic	Conclusion
	management when business rules and/or use cases change
	• Detailed confirmation work products are required to support business rule traceabilitiy and determining how the work products fit together
Strengths of the Styles	• Traceabilitiy across life cycle phases • Visibility of business rules to step in use cases • Categorization of business rules helps to ensure completeness and supports an interactive communication with users • Business rules assist in the use case being used throughout the complete system development life cycle. • When a company must make a "build or buy decision" on a problem solution, use case and business rules can help the company make that decision. • Business rule categories assists in partitioning user groups • Business rules assist in complete requirements. High level requirements link to business rules which

Topic	Conclusion	Topic	Conclusion
	in turn link to use cases		rules for a complete picture
Rule Location	• Except possibly when automated, business rules may be in use case or external to use case (but still reference by the use case) depending upon project dynamics, number of rules, rule complexity, and security concerns		• All styles provided traceabilitiy • All styles realized the trade-off between expressing detail and maintainability • All styles required tool support from case tool vendors
	• Another possibility is to determine the business rule location by type of business rule being captured		
Rule Application: how do we apply the rules	• The business model reflects the business rules. Constraints to the business model (the object model with attributes and responsibilities, state model and interaction diagrams as in the UML language) can represent business rules.		
	• Other possibilities for applying business rules are (1) in the user interface, (2) within an expert system or (3) in pre and post conditions.		
Characteristics of styles supported in the participates use cases	• All styles tried to maintain a consistency among models (object, state, interaction) and business rules at each level of recursive detail or granularity		
	• All styles tried to categorize business		